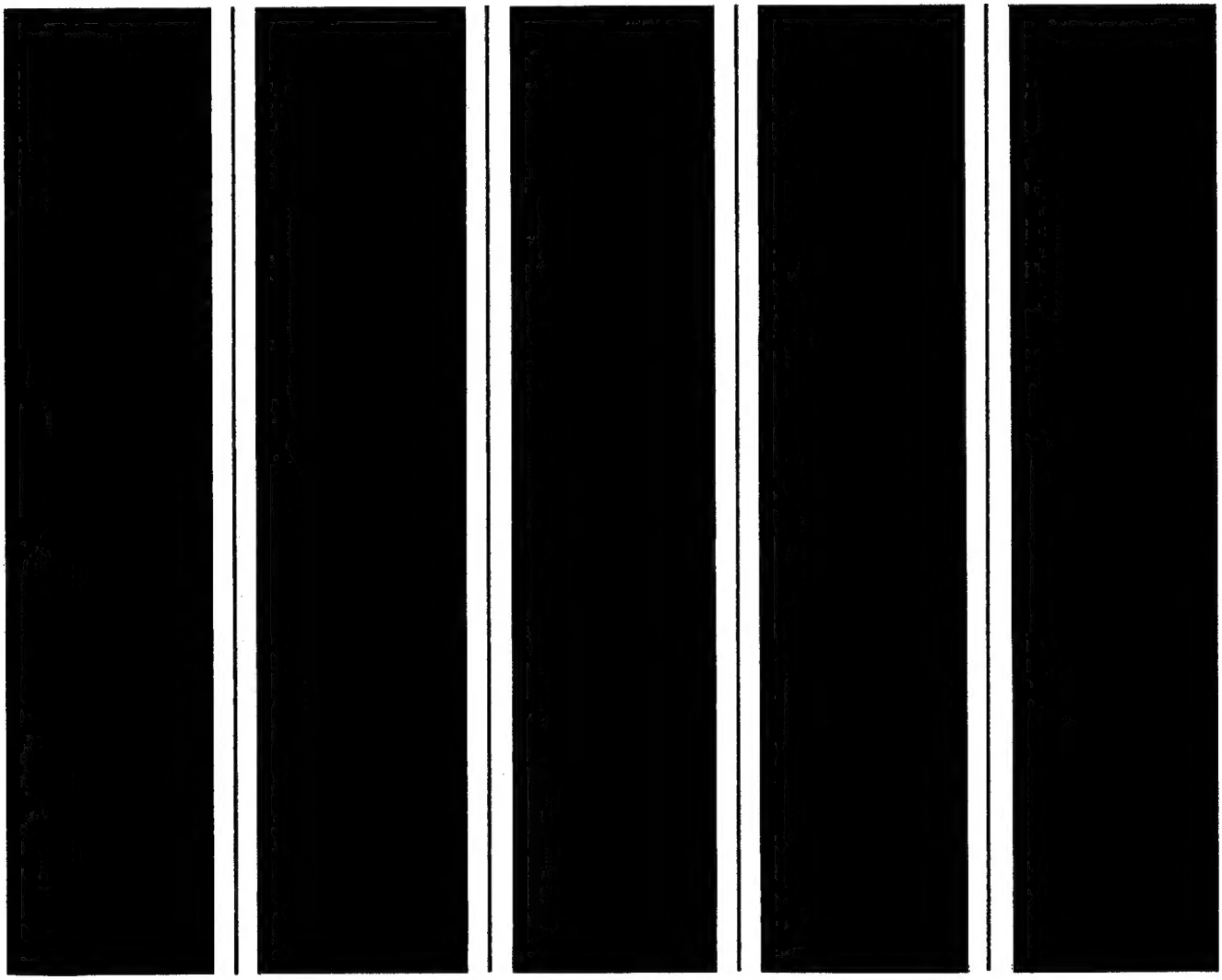
price $6.00

SERVICE MANUAL
stereo components

R-316 R-316L R-326 T-526 T-526L



H SCOTT® ...where innovation is a tradition

H. H. SCOTT, INC., 111 Powder Mill Road, Maynard, Massachusetts 01754, Tel. 617 897-8801

AUDIO SPECIFICATIONS

R316, R326
R316L

Output Power

R316 . . 20 watts per channel min. RMS at 8 ohms from 40-20,000 Hz with no more than 0.5% total harmonic distortion.

R326 . . 30 watts per channel min. RMS at 8 ohms from 40-20,000 Hz with no more than 0.5% total harmonic distortion.

Input Sensitivity

Phono	2.5 mV
Mic	6.0 mV
Aux	160 mV
Tape Recorder	160 mV

Signal-to-Noise

Phono	60 dB
Mic	65 dB
Aux	75 dB

Frequency Response	15 Hz to 35 kHz
Phono Response RIAA	±1 dB
Phono Overload	60 mV
Max. Input Signal Phono (IHF)	42 dB

Input Impedance

Phono	47,000 ohms
Aux	60,000 ohms
Tape	60,000 ohms

Cross Talk @ 1 kHz	45 dB
@10 kHz	35 dB

Rated Harmonic Distortion

R316	0.5%
R326	0.5%

Intermodulation Distortion

R316	0.15%
R326	0.1%

From 0.5 Watts to rated equivalent sine wave power at 8 ohms with both channels operating.

CONTROLS

Bass Control Range	±10.5 dB (±1 dB) 100 Hz
Treble Control Range	±10.7 dB (±1 dB) 10 kHz
High Filter	3.5 dB at 10 kHz ±1 dB
Low Filter, R326	7.5 dB at 100 Hz ±1 dB
Loudness Comp	3.5 dB at 10 kHz ±1 dB
	7.5 dB at 100 Hz ±1 dB

FM TUNER SECTION

Usable Sensitivity

Mono	7.0 dBf (2.5 µV)
Stereo	24 dBf (18 µV)

50 dB Quieting Sens.

Mono	10 dBf (3.5 µV)
Stereo	36 dBf (70 µV)

Signal-to-noise @ 65 dBf

Mono	68 dB
Stereo	65 dB

Frequency Response 30-15,000 Hz

Mono	±2 dB
Stereo	±2 dB

Distortion @ 65 dBf

Mono	0.3%
Stereo	0.5%

Alternate Channel Selectivity	52 dB

Stereo Separation

100 Hz	36 dB
1,000 Hz	40 dB
10,000 Hz	34 dB

Tuning Range	87.5-108 MHz
Deemphasis (switchable)	25, 50 & 75 µS
Tuning Indicators	Meter, Signal Strength & Center Tune*
Interstation Muting	Switchable
Stereo Threshold	7-15 µV Preset
Muting Threshold	7-15 uV Preset (switchable, On-Off)
Antenna Input	300 ohm Balanced, 75 ohm Unbalanced

AM TUNER SECTION

Usable Sensitivity	200 µV/m
Selectivity	35 dB min.
Signal-to-noise Ratio	50 dB
Total Harmonic Distortion (40% modulation)	2.0%
Tuning Indicator	Meter
Antenna	Built-in Ferrite Loopstick
Tuning Range	535 kHz-1605 kHz
Long Wave Tuning Range	150 kHz-350 kHz

*signal strength meter only, in Model R316

GENERAL SPECIFICATIONS

Power Line Requirement	120 Volts, 60 Hz
Power Consumption	
R316	25 Watts min. 205 Watts max.
R326	28 Watts min. 270 Watts max.
Dimensions	18 7/16 x 15 3/16 x 5 5/8 inches
	466 x 390 x 142 mm.
Weight	
R316	25.5 lbs. . . 11.6 kg.
R326	26.5 lbs. . . 12 kg.
Shipping Weight	Add 4 lbs. 1.82 kg for container and materials.

AUDIO SPECIFICATIONS

T526

Output Impedance	
Tape Output and Fixed Output	10,000 ohms
Adjustable Output	Approx. 10,000 ohms
Output Level	
Tape Output and Fixed Output	0.5 Volts @ 400 Hz
Adjustable Output	0 - 0.5 Volts @ 400 Hz

GENERAL SPECIFICATIONS

Power Line Requirement	120 Volts, 60 Hz
Power Consumption	15 Watts
Dimensions	15 3/4 x 13 3/4 x 5 5/8 inches
	400 x 350 x 142 mm.
Weight	16.5 lbs. 7.5 kg.
Shipping Weight	Add 3 1/4 lbs. 1.5 kg. for container and materials.

POWER LINE REQUIREMENT

Models R316L & T526L	100V, 120V, 220V, or 240V
	50 or 60 Hertz

TEST AND ALIGNMENT PROCEDURES

RECOMMENDED EQUIPMENT (or equivalent)

1. AC vacuum tube Voltmeter (H.P. 400D)
2. DC millivolt meter (Fluke 8000A)
3. Oscilloscope
4. Volt-Ohm meter (Triplett model 630)
5. Harmonic Distortion meter (H.P. 331A)
6. AM Signal Generator (H.P. 606A)
7. FM Signal Generator (Measurements Corp. model 88)
8. Multiplex Generator (Scott model 830)
9. Audio Oscillator (H.P. 200 CD)
10. Standard AM dummy antenna (200 μμF ceramic or mica capacitor)
11. Standard FM dummy antenna for 300 ohm balanced input (see circuit, Figure FM-1)
12. Suitable alignment tools, cables, etc.
13. Two 8 ohm resistive loads, compensated for L & C (min. 50W)
14. Variable power line transformer (General Radio 5A)
15. Suitable line Voltage and current monitoring meters

Note: Equipment specifications are minimum.

Set controls to following positions for test procedure. Deviate from these settings as instructed in the test procedures. Return to these settings at the beginning of each new test. All tests are to be made with 117V AC line. Unless otherwise specified, supply input to both channels and read both outputs.

Front Panel

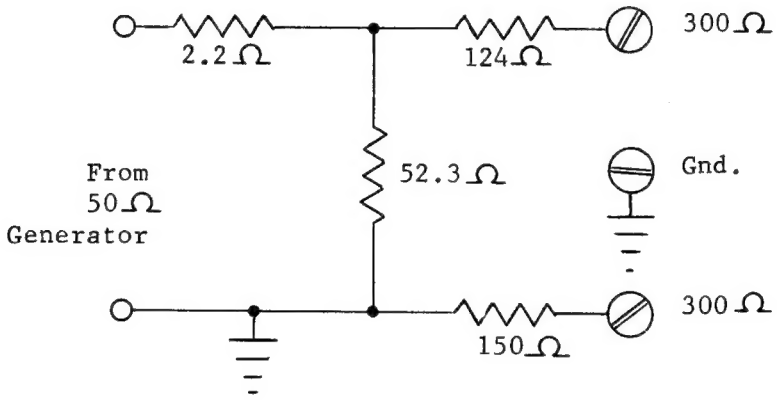
Input Selector	Aux
Tone Controls	Flat (12 O'clock)
Loudness	Minimum (full CCW)
Balance	12 O'clock
Speaker #1	On

Note: When troubleshooting defective power circuits, it is sometimes useful to switch a small line voltage lamp in series with equipment under test before applying power. The lamp will limit the current drawn, thus preventing further damage to circuit components. The variable power line transformer is also useful to determine if additional short circuits exist, if used with a power line current and Volt meter.

Note: When power line voltages other than 120 V.A.C. are used for testing, be sure voltage selector in the unit is set to the appropriate position and that equivalent test equipment is used.

Where a standard FM antenna matching network is not available for the particular signal generator in use, a suitable network can be assembled on a small phenolic, or plastic board, using the circuit below.

The completed assembly should use short leads for connection to the receiver antenna terminals. Some generator cables may permit the circuit block to be attached directly to the cable terminals.



Note: All resistors are 1/2 Watt, carbon composition, selected on a DVM, or Wheatstone bridge.

NOTE: Models R-316L and T-526L are designed to tune two AM frequency bands. See tuning ranges listed on page 2.
In model R-316L, band switches replace FILTER AM and FILTER MPX.
In model T-526L, band switches replace DIM switch and DE-EMP switch.

TEST	INPUT	CONTROL SETTINGS	TEST EQUIPMENT	SCALE SETTINGS	MEASURE AT		READINGS	TOL.
					POSITIVE PROBE	NEGATIVE PROBE		
NPN Output transistor Q807 & Q817	None Unit "OFF"		Triplett 630A	Ohms X 1000	+ Filter cap	P809 P806	9K	±1K
NPN Output transistor Q810 & Q820	None Unit "OFF"		Triplett 630A	Ohms X 1000	P809 P806	- Filter cap	700 ohms	±1K ±200 ohms
B+ Supply	None Unit "ON"	Volume "Minimum" Selector "FM"	Triplett 630A	Volts	+ Filter cap	Chassis	R316 - 26V R326 - 32V T526 - 24V	±15%
B- Supply	None Unit "ON"	Volume "Minimum" Selector "FM"	Triplett 630A	Volts 60 DC	Chassis	- Filter cap	R316 - 26V R326 - 32V	±15%
Regulated B+ Voltage	None Unit "ON"	Volume "Minimum" Selector "FM"	Triplett 630A	Volts 60 DC	P901 Regulator/ Supply Board	Chassis	+13V DC	±10%
Output Offset Voltage	None Unit "ON"	Volume "Minimum" Selector "Aux"	DC Milli-Voltmeter	100mV	Speaker #A "L"	Speaker #A "G"	±100mV max.	Max.
Bias Check	None Unit "ON"	None, if necessary, adj. padding resistor across R808 L. Ch. R830 R. Ch.	Triplett 630A	12mA DC only	"E" of Q807 "E" of Q817	"C" of Q810 "C" of Q820	Adjust pad for 0.2mA DC nominal Unit temperature approx. 100°F, 42°C	+100% -0

AUDIO TEST PROCEDURE

TEST	INPUT	CONTROL SETTINGS	TEST EQUIPMENT	SCALE SETTINGS	MEASURE AT		READINGS	TOL.
					POSITIVE PROBE	NEGATIVE PROBE		
Speaker A Audio Level 8 ohm	1000 Hz Aux.	Selector "Aux." Mono Switch "In" Volume "Maximum"	AC VTVM Scope	30V 10V/DIV	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Adjust input signal for output of: R-316 - 12.7V R-326 - 15.5V (No Clipping permitted)	+1 dB -0 dB
Tape 1 Inputs Tape 2 Inputs	Tape 1 in 1000 Hz Tape 2 in 1000 Hz	Tape Monitor Switch "Monitor" (Volume Maximum)	AC VTVM	30V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Same as above	
Tape Monitor Output	Aux.	Selector "Aux." Volume "Minimum"	AC VTVM	1V	Tape Out	Ground	Output of 0.15V with input of 0.15V	
Audio Level 8 ohm	Aux. 1000 Hz	Selector "Aux." Mono Switch "Mono" Volume "Maximum" Spkr. B. On	AC VTVM	30V	Speaker B "L" 8 ohm load high	Speaker B "G" 8 ohm load low	Adjust input signal for output of: R-316 - 12.7V R-326 - 15.5V (No Clipping permitted)	
Check Spkr. A & B	Same as above	As above except Spkr. A & B	AC VTVM	30V	Speakers A & B "L" & "R" 8 ohm load high	Speakers A & B "G" 8 ohm load low	Output check only, check at low level	
Frequency Response Power Amp & Tone Control	Aux.	Tone Control "Flat" Volume "Maximum" Adjust balance for center	AC VTVM	1V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Adjust input for 0 dB (.775V) output (3 dB down points should be below 10 Hz and above 30 kHz)	±1dB

AUDIO TEST PROCEDURE

TEST	INPUT	CONTROL SETTINGS	TEST EQUIPMENT	SCALE SETTINGS	MEASURE AT		READINGS	TOL.
					POSITIVE PROBE	NEGATIVE PROBE		
Frequency Response Phono (RIAA)	Phono 1000 Hz	Selector "Phono" Keep setting listed above	AC VTVM	1V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Adjust input for 0 dB (.775V) output Note: 100 Hz +12.5 dB 10 kHz -13.0 dB	±1.5 dB
Tone Control Response	Aux. 1000 Hz	Selector "Aux." Mode Switch "Mono" Tone Control "Flat"	AC VTVM	3V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Adjust input for 0 dB (.775V) output Note: @ 100 Hz Bass boost +10 dB Bass cut -10 dB @ 10 kHz Treble boost +10 dB Treble cut -10 dB	±1.5 dB ±1.5 dB
Loudness Compensation	Aux. 1000 Hz	Selector "Aux." Tone Control "Flat" Volume "11 O'clock" Loudness Sw. "on"	AC VTVM	3V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Adjust input for 0 dB. Frequency, to 10 kHz; Note 3 dB increase. Frequency to 100 Hz; Note 7 dB increase	±1 dB ±1 dB
Crosstalk	Aux. Left Channel 10 kHz	Selector "Aux." Tone Control "Flat" Comp. Sw. "Off" Volume "Maximum" Mode Switch "Stereo"	AC VTVM	3V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Set output for 0 dB Read right channel output 35 dB down	Min.

AUDIO TEST PROCEDURE

TEST	INPUT	CONTROL SETTINGS	TEST EQUIPMENT	SCALE SETTINGS	MEASURE AT		READINGS	TOL.
					POSITIVE PROBE	NEGATIVE PROBE		
Balance Control	Aux. Left Channel 1000 Hz	Selector "Aux." Tone Control "Flat" Comp. Sw. "Off" Volume "Maximum" Mode Switch "Mono" Balance CCW Balance CW	AC VTVM	3V	Speaker A "L" 8 ohm load high "	Speaker A "G" 8 ohm load low "	Set output for 0 dB Note 45 dB drop in output, right chan. Note 45 dB drop in output, left chan.	±2 dB ±2 dB
Harmonic* Distortion	Aux. 20 Hz * 1000 Hz 20,000 Hz *(R316 & R326 - 40 Hz)	Selector "Aux." Mode Switch "Mono" Balance "Center" Volume "Maximum"	AC VTVM Harmonic Distortion Analyzer	30V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Adjust input for output @ both chan. R316 - 12.7V R326 - 15.5V	0.5%
*Note: Power line Voltage 120 VAC ≤2.0% line THD. When transformer primary is connected for other than 120 Volts, use appropriate supply voltage.								
Damping Factor	Aux. 1000 Hz	Selector "Aux." Mode Switch "Mono" Balance "Center" Volume "Maximum"	AC VTVM	3.0V	Speaker A "L" 8 ohm load high	Speaker A "G" 8 ohm load low	Set output to 2.45V (+10 dB) Remove load and note increase in level Max. 0.5 dB	

AM MW
TEST PROCEDURE

STEP	ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	INPUT SELECTOR SWITCH	DIAL SETTING	TEST INSTRU-MENTS	ADJUST	REMARKS
1.	Connect external antenna terminal thru 220 pF dummy antenna	External antenna terminal. Keep signal level low.	455 kHz 60% mod. 400 Hz	AM MW	Approx. 600 kHz (No sta.)	Scope, VTVM @ Tape Output	I.F. coils T207 T208	Adjust for maximum signal output
2.	Same as above	Same as above	600 kHz	Same	600 kHz	Same	AM MW Osc. T203	Adjust for calibration
3.	Same as above	Same as above	1400 kHz	Same	1400 kHz	Same	AM MW Osc. Trimmer AM1 (F.E. ass'y)	Adjust for calibration
4.	Same as above	Same as above	1400 kHz	Same	1400 kHz	Same	MW R.F. Trimmers AM2, AM3 (F.E. ass'y)	Adjust for maximum signal
5.	Same as above	Same as above	600 kHz	Same	600 kHz	Same	MW Antenna slider under bracket (See figure)	Adjust for maximum signal (soften wax, then reseal)
6.	Repeat steps 2, 3, 4, 5 for maximum.							
7.	Same as Step 1	300μV	1400 kHz 60% mod.	AM MW	1400 kHz	VTVM & Distor-tion Anal-yzer	Detector T209	Adjust for maximum undis-torted output (1% or less). Output should fall between 600 and 800 mV.
8.	Whistle Filter Alignment: Connect output of audio oscillator to junction of R215 & C225. Set oscillator frequency to 1.0 kHz, adjust audio oscillator output for 1.0 Volt at tape output. Change oscillator frequency to 9.5 kHz and adjust T210 for minimum output.							

AM LW
TEST PROCEDURE

STEP	ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	INPUT SELECTOR SWITCH	DIAL SETTING	TEST INSTRU-MENTS	ADJUST	REMARKS
9.	Same as Step 1	Same as Step 1	150 kHz	AM LW	150 kHz	Same as Step 1	AM LW Osc. T204	Adjust for calibration
10.	Same as above	Same as above	350 kHz	Same	350 kHz	Same	AM LW Osc. Trimmer C236	Adjust for calibration
11.	Same as above	Same as above	350 kHz	Same	350 kHz	Same	LW R.F. Trimmers C235, C237	Adjust for maximum signal
12.	Same as above	Same as above	150 kHz	Same	150 kHz	Same	LW Antenna slider under bracket (See figure)	Adjust for maximum signal (soften wax, then reseal)
13.	Repeat steps 9, 10, 11, 12 for maximum.							
14.	Same as Step 1	Same as Step 1	455 kHz	AM LW	Approx. 350 kHz (No sta.)	Scope, probe at IC PIN 1 (μA 720)	455 kHz trap T206	Tune for Null

NOTE: AM IF is aligned at the factory using sweep generator. Do not disturb coil adjustment unless replacement coils are installed. Align new coil using 5 kHz generator modulation. Adjust for maximum audio output.

FM
TEST PROCEDURE

STEP	ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	INPUT SELECTOR SWITCH	DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Dummy antenna Figure FM-1	External 300 ohm term. Use low signal level	10.7 MHz 100% mod.	FM	Off Station	VTVM @ Tape Output	Front End IF	Adjust for maximum signal strength meter indication
2.	Same as above	Same as above	90 MHz 1 kHz Modulation. Keep generator output low.	Same	90 MHz	Same	Front End LO	Adjust for dial calibration
3.	Same as above	Same as above	Same	Same	Same	Same	Front End LA LR_1 LR_2	Adjust for maximum audio output. Keep signal level low.
4.	Same as above	No output Same as above	Same	Same	Off Station Use noise only	Same	Detector T102	Use center tune meter (R326). R316 use DC VTVM connected, negative to ground, positive to P106. Adjust for zero DC Volts.
5.	Same as above	External 300 ohm term. Use low signal level	90 MHz	FM	90 MHz	VTVM @ Tape Output	T101	Adjust for maximum output and minimum distortion
6.	Same as above	Same as above	106 MHz Keep Generator output low	Same	106 MHz	Same	TCO	Adjust for dial calibration
7.	Same as above	Same as above	106 MHz	Same	106 MHz	Same	TCA, TCR_1 and TCR_2	Adjust for maximum audio output, keep input level low for noisy signal
8.	Repeat steps 2, 3, 6 and 7 until no further improvement is noted. Check specification.							

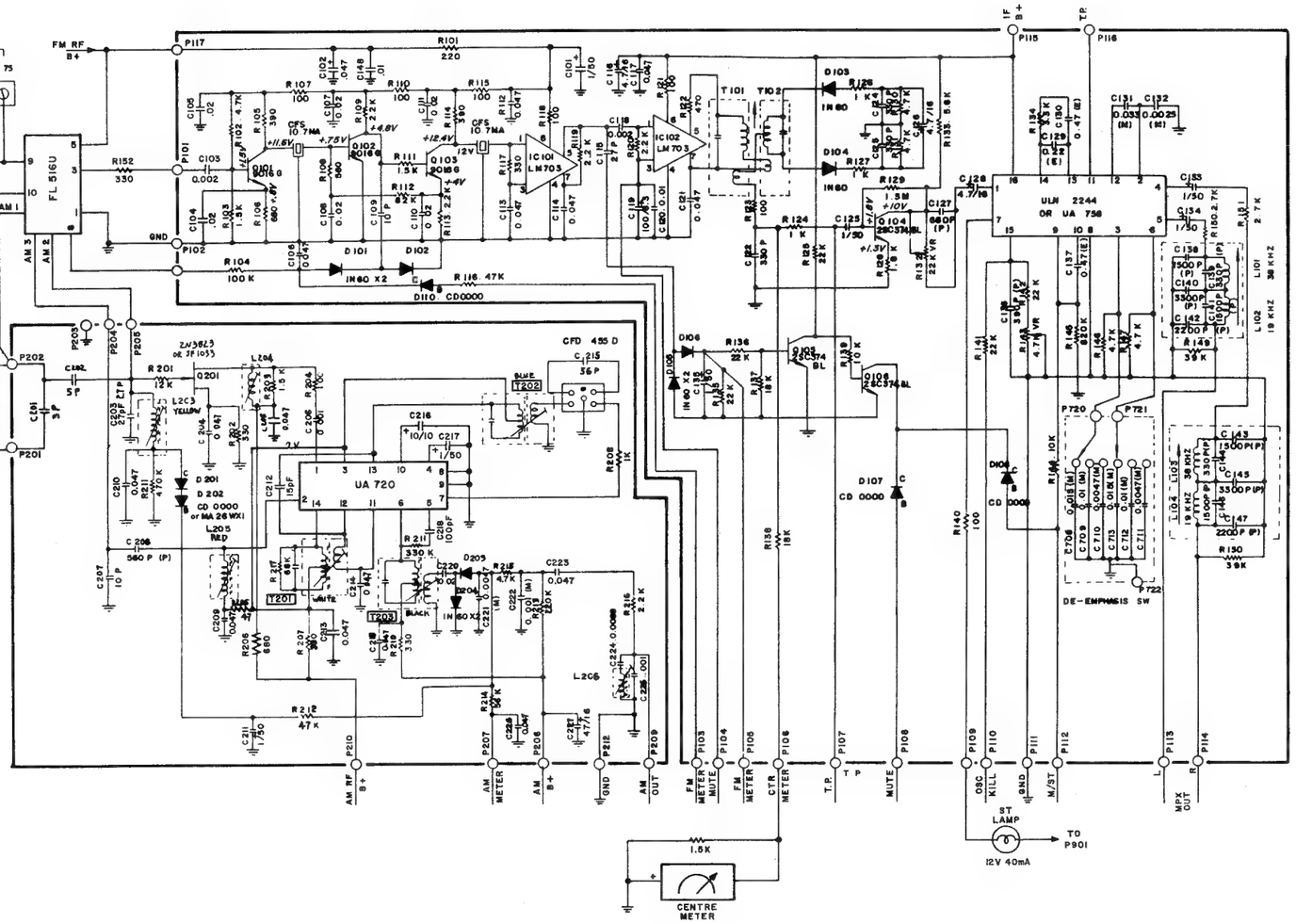
MULTIPLEX
USE 19 kHz OUTPUT OF MX GENERATOR TO TRIGGER OSCILLOSCOPE HORIZONTAL

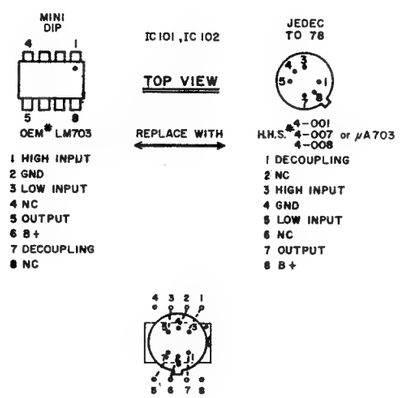
STEP	ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	INPUT SELECTOR SWITCH	DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Dummy antenna Figure FM-1	External 300 ohm term.	Use convenient freq.	FM	Tune to Gen.	VTVM @ Tape Output	R143 for stationary waveform	Generator output to zero. Scope Vertical to P116. Muting on (19 kHz Osc. adj.)
2.	Same as above	Same as above	Same	FM Stereo	Same	Same		Generator output 1.0mV Note waveform is synchronized
3.	Same as above	Same as above	Same	Same	Same	Same	R132	Adjust for maximum separation
4.	Note: Multiplex filter coils L101, L102, L103 and L104 are pre-aligned. Do not adjust unless circuit component is replaced. If necessary, adjust for null at specified frequency.							

DEEMPHASIS: With output level reference at 400 Hz, switch modulation frequency to 10 kHz. Output level as follows: ±1 dB

75 µS	13.7 dB
50 µS	9.5 dB
25 µS	4.5 dB

SCHEMATIC DIAGRAM
TUNER SECTION
R316, R326





TUNER SECTION SEMICONDUCTOR LIST

Q101, Q102, Q103	CS 9016G or SE 1001
Q104, Q105	2SC 374 or CS 9014C
Q106	2SC 374 or CS 9014C
IC101, IC102	LM 703 or µA 703
Q201	2N 3823 or JF 1033
AM Integrated Circuit . . .	µA 720
Multiplex IC	µA 758 or ULN 2244

DC VOLTAGES AT INTEGRATED CIRCUIT PINS

PIN#	IC101	IC102	µA 758	µA 720
1	1.4V	1.4V	3.2V	5V
2	—	—	4.6V	7.3V
3	1.4V	1.4V (station) 0.9V (mute)	5.2V	7.4V
4	0V	0V	4.5V	5V
5	11.4V	11.4V	4.5V	0.2V
6	13V	13V	5.0V	12V
7	12V	12V	13.7V	0.8V
8	—	—	0V	0V
9			1.5V (mono) 2.8V (stereo)	0V
10			2.8V	0.7V
11			1.8V	0.7V
12			2.7V	0.7V
13			2.8V	12V
14			2.8V	13V
15			2.5V	
16			13.7V	

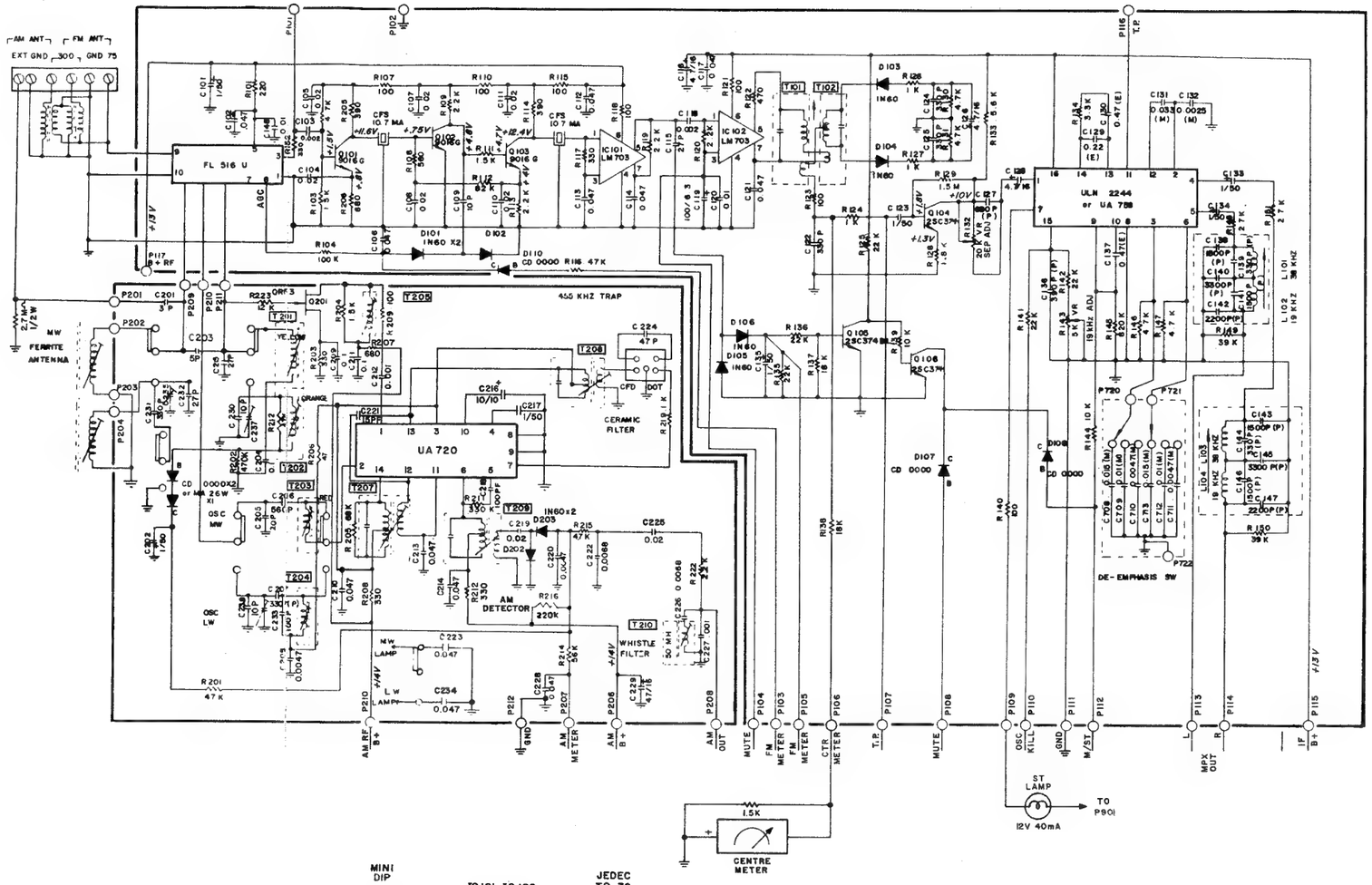
TUNER SECTION SEMICONDUCTOR LIST

Q101, Q102, Q103	CS 9016G or SE 1001
Q104, Q105	2SC 374 or CS 9014C
Q106	2SC 374 or CS 9014C
IC101, IC102	LM 703 or µA 703
Q201	2N 3823 or JF 1033
AM Integrated Circuit . . .	µA 720
Multiplex IC	µA 758 or ULN 2244

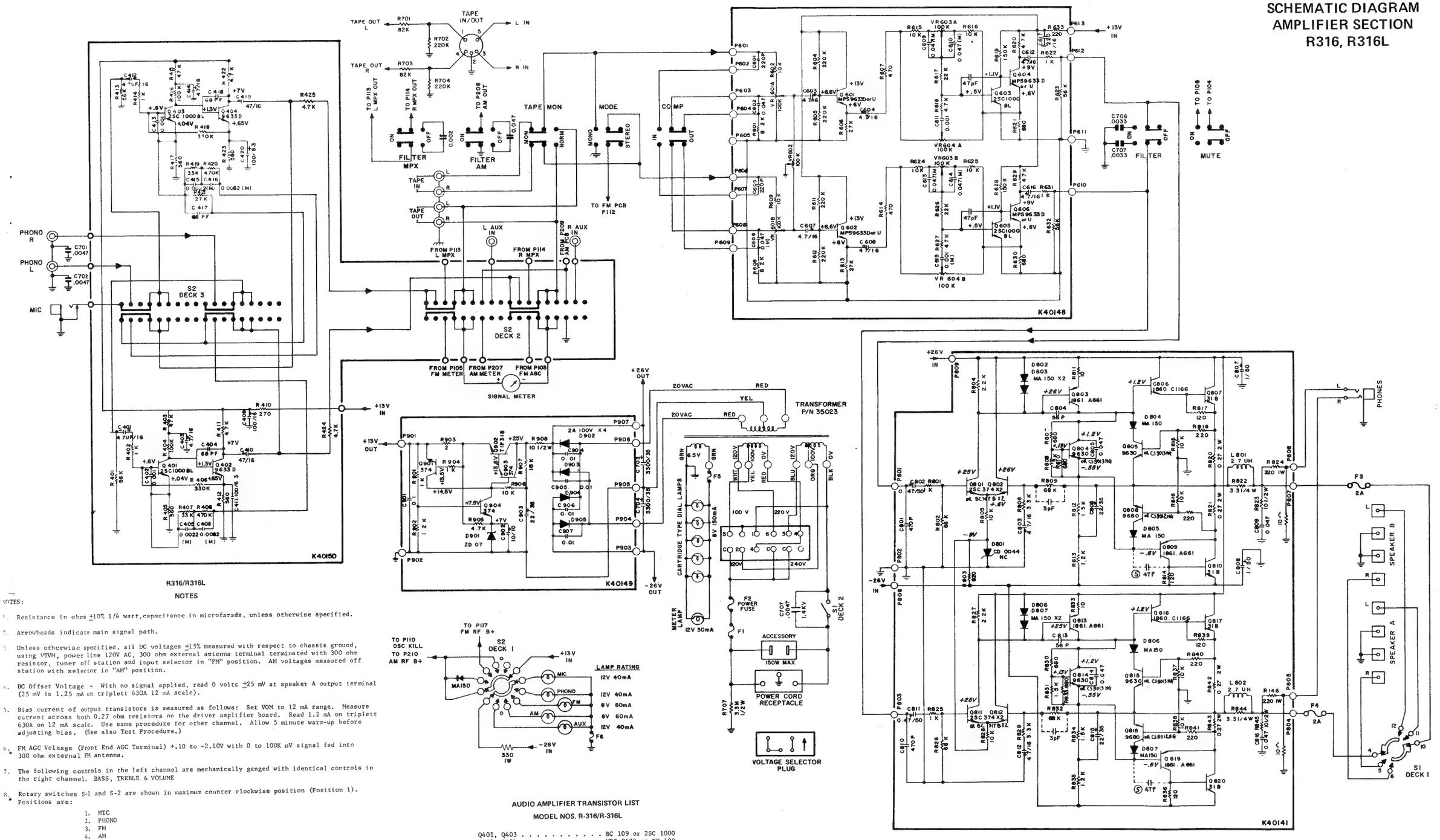
DC VOLTAGES AT INTEGRATED CIRCUIT PINS

PIN#	IC101	IC102	µA 758	µA 720
1	1.4V	1.4V	3.2V	5V
2	——	——	4.6V	7.3V
3	1.4V	1.4V (station) 0.9V (mute)	5.2V	7.4V
4	0V	0V	4.5V	5V
5	11.4V	11.4V	4.5V	0.2V
6	13V	13V	5.0V	12V
7	12V	12V	13.7V	0.8V
8	——	——	0V	0V
9			1.5V (mono) 2.8V (stereo)	0V
10			2.8V	0.7V
11			1.8V	0.7V
12			2.7V	0.7V
13			2.8V	12V
14			2.8V	13V
15			2.5V	
16			13.7V	

SCHEMATIC DIAGRAM
TUNER SECTION
R316L



SCHEMATIC DIAGRAM
AMPLIFIER SECTION
R316, R316L



R316/R316L

NOTES

NOTES:

1. Resistance in ohms ±10% 1/4 watt, capacitance in microfarads, unless otherwise specified.
2. Arrowheads indicate main signal path.
3. Unless otherwise specified, all DC voltages ±15% measured with respect to chassis ground, using VTVM, power line 120V AC, 300 ohm external antenna terminal terminated with 300 ohm resistor, tuner off station and input selector in "FM" position. AM voltages measured off station with selector in "AM" position.
4. DC Offset Voltage - With no signal applied, read 0 volts ±25 mV at speaker A output terminal (25 mV is 1.25 mA on triplett 630A 12 mA scale).
5. Bias current of output transistors is measured as follows: Set VOM to 12 mA range. Measure current across both 0.27 ohm resistors on the driver amplifier board. Read 1.2 mA on triplett 630A on 12 mA scale. Use same procedure for other channel. Allow 5 minute warm-up before adjusting bias. (See also Test Procedure.)
6. FM AGC Voltage (Front End AGC Terminal) +.10 to -2.10V with 0 to 100K μV signal fed into 300 ohm external FM antenna.
7. The following controls in the left channel are mechanically ganged with identical controls in the right channel. BASS, TREBLE & VOLUME
8. Rotary switches S-1 and S-2 are shown in maximum counter clockwise position (Position 1). Positions are:
   1. MIC
   2. PHONO
   3. FM
   4. AM
   5. AUX

   (Front decks shown from knob end and rear decks shown from end opposite knob.)
9. Power Switch is mechanically ganged to speaker selector switch.
10. Indicator lamp for LW and MW in long wave models are wired directly to AM P.C. board.
11. Fuses

Speaker	. . . . .	2.0A Normal blow
Dial and Function Lamp	. . . .	Suitable lengths of #38 SWG copper wire (0.006 inch, 0.15mm dia.)
Power F-1	. . . . .	100-120V . . . 1.5A Slow blowing time delay type
	. . . . .	220-240V . . . 0.75A Slow blowing time delay type
Power F-2	. . . . .	Time delay type -- 2.0A Pigtail leads, wired internally. (May not be used in all production units)

AUDIO AMPLIFIER TRANSISTOR LIST

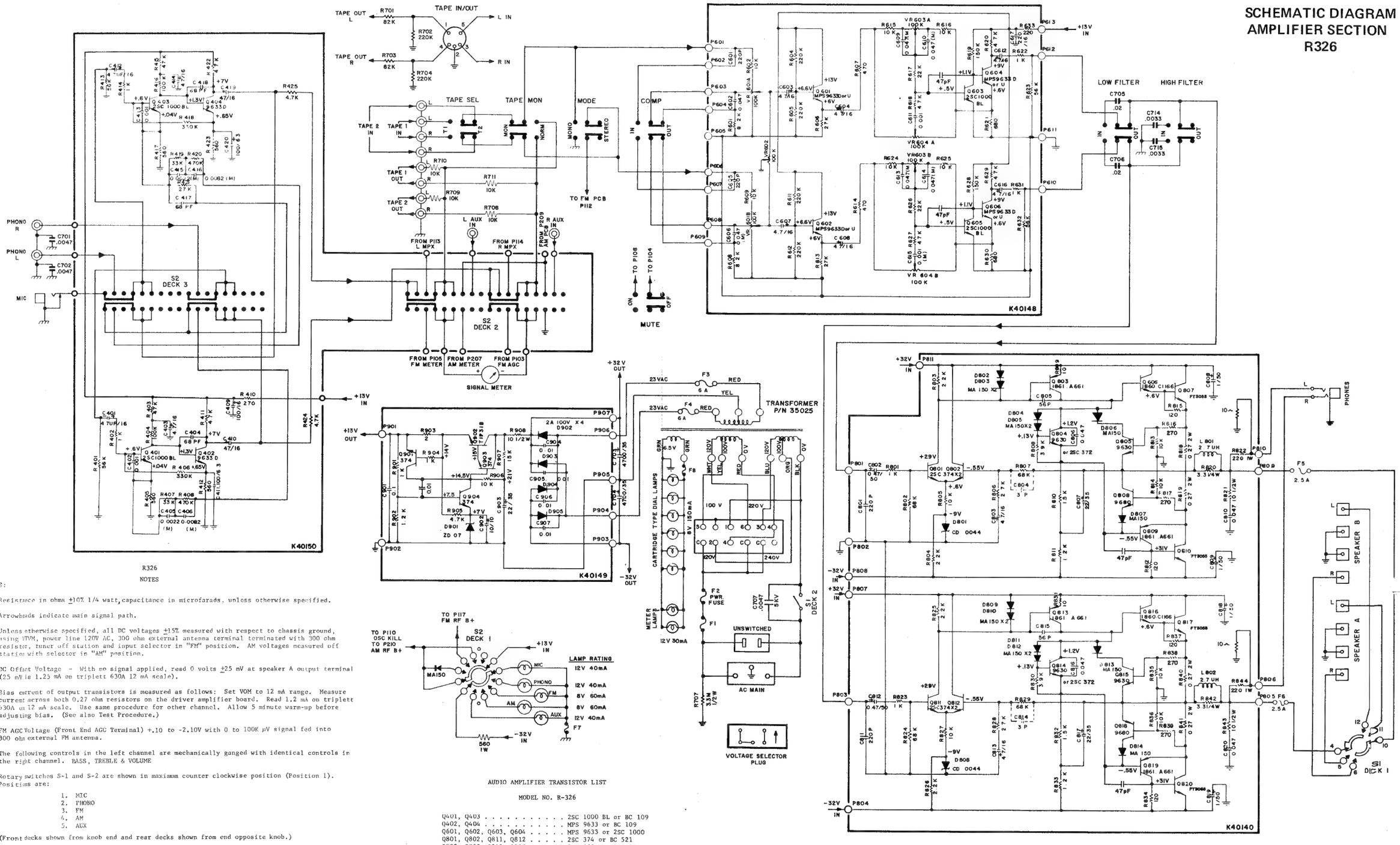
MODEL NOS. R-316/R-316L

Q401, Q403	BC 109 or 2SC 1000
Q402, Q404	MPS 9633 or BC 109
Q601, Q602, Q603, Q604	MPS 9633 or 2SC 1000
Q801, Q802, Q811, Q812	2SC 374 or BC 521
Q803, Q809, Q813, Q819	2SA 661 or MPS A56
Q804, Q814	MPS 9630 or 2SC 372
Q806, Q816	MPS A06 or FCS 1860
Q805, Q815	MPS 9630 or 2SC 372
Q808, Q818	MPS 9680 or 2SA 495
Q807, Q810, Q817, Q820	TIP 318 or 2SC 1173
Q901, Q903, Q904	2SC 374 or BC 521

NOTE: ALTERNATE DEVICES ARE FOR USE IN THIS AMPLIFIER ONLY, THEY ARE NOT NECESSARILY APPLICABLE TO OTHER CIRCUITS.

NOTE: MODEL R-316L
Delete filter switches MPX and AM. Add band switches LW and MW shown on schematic diagram, tuner section of R-316L.

SCHEMATIC DIAGRAM
AMPLIFIER SECTION
R326



R326

NOTES

NOTES:

1. Resistance in ohms ±10% 1/4 watt, capacitance in microfarads, unless otherwise specified.
2. Arrowheads indicate main signal path.
3. Unless otherwise specified, all DC voltages ±15% measured with respect to chassis ground, using VTVM, power line 120V AC, 300 ohm external antenna terminal terminated with 300 ohm resistor, tuner off station and input selector in "FM" position. AM voltages measured off station with selector in "AM" position.
4. DC Offset Voltage - With no signal applied, read 0 volts ±25 mV at speaker A output terminal (25 mV is 1.25 mA on triplett 630A 12 mA scale).
5. Bias current of output transistors is measured as follows: Set VOM to 12 mA range. Measure current across both 0.27 ohm resistors on the driver amplifier board. Read 1.2 mA on triplett 630A on 12 mA scale. Use same procedure for other channel. Allow 5 minute warm-up before adjusting bias. (See also Test Procedure.)
6. FM AGC Voltage (Front End AGC Terminal) +.10 to -2.10V with 0 to 100K µV signal fed into 300 ohm external FM antenna.
7. The following controls in the left channel are mechanically ganged with identical controls in the right channel. BASS, TREBLE & VOLUME
8. Rotary switches S-1 and S-2 are shown in maximum counter clockwise position (Position 1). Positions are:
   1. MIC
   2. PHONO
   3. FM
   4. AM
   5. AUX

   (Front decks shown from knob end and rear decks shown from end opposite knob.)
9. Power switch is mechanically ganged to speaker selector switch.
10. Indicator lamp for LW and MW in long wave models are wired directly to AM P.C. board.
11. Fuses

Speaker	2.5A Normal blow
Dial and Function Lamp	Suitable lengths of #38 SWG copper wire (0.006 inch, 0.15mm dia.)
Power F-1	100-120V . . . 2.5A Slow blowing time delay type
	220-240V . . . 1.25A Slow blowing time delay type
Power F-2	Time delay type -- 3.0A. Pigtail leads, wired internally. (May not be used in all production units)

AUDIO AMPLIFIER TRANSISTOR LIST

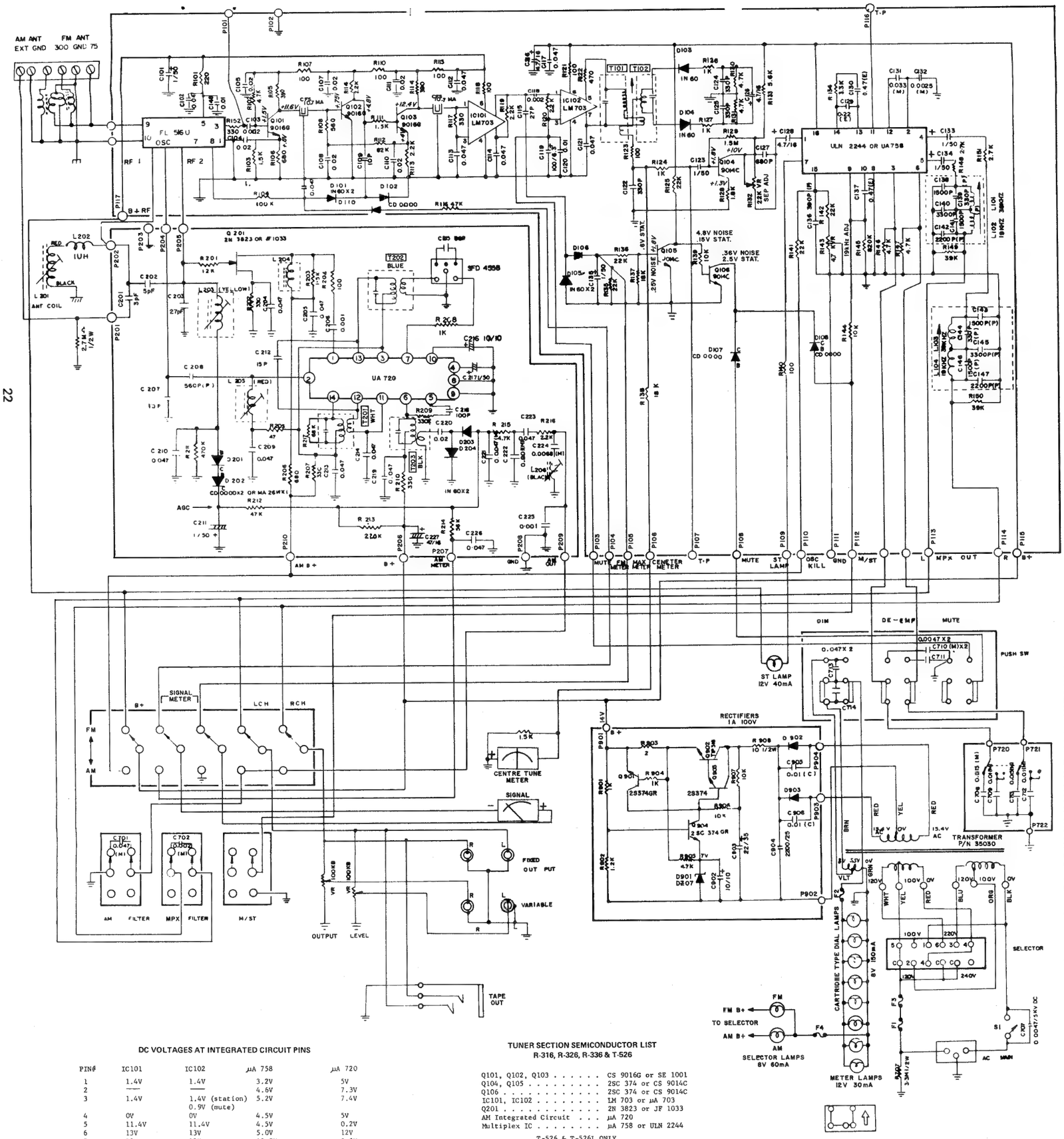
MODEL NO. R-326

Q401, Q403	2SC 1000 BL or BC 109
Q402, Q404	MPS 9633 or BC 109
Q601, Q602, Q603, Q604	MPS 9633 or 2SC 1000
Q801, Q802, Q811, Q812	2SC 374 or BC 521
Q803, Q809, Q813, Q819	2SA 661 or MPS A56
Q804, Q814	MPS 9630 or 2SC 372
Q806, Q816	MPS A06 or FCS 1860
Q805, Q815	MPS 9630 or 2SC 372
Q808, Q818	MPS 9680 or 2SA 495
Q807, Q810, Q817, Q820	FT 3055
Q901, Q903, Q904	2SC 374 or BC 521

ALL DIODES (except zeners and power rectifiers): MA 150 or 1N 4148.

NOTE: ALTERNATE DEVICES ARE FOR USE IN THIS AMPLIFIER ONLY, THEY ARE NOT NECESSARILY APPLICABLE TO OTHER CIRCUITS.

SCHEMATIC DIAGRAM MODEL NO. T526



DC VOLTAGES AT INTEGRATED CIRCUIT PINS

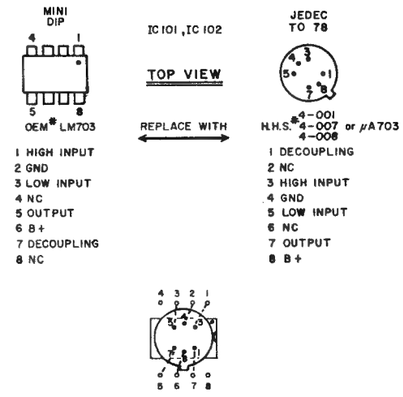
PIN#	IC101	IC102	µA 758	µA 720
1	1.4V	1.4V	3.2V	5V
2	——	——	4.6V	7.3V
3	1.4V	1.4V (station) 0.9V (mute)	5.2V	7.4V
4	0V	0V	4.5V	5V
5	11.4V	11.4V	4.5V	0.2V
6	13V	13V	5.0V	12V
7	12V	12V	13.7V	0.8V
8	——	——	0V	0V
9			1.5V (mono) 2.8V (stereo)	0V
10			2.8V	0.7V
11			1.8V	0.7V
12			2.7V	0.7V
13			2.8V	12V
14			2.8V	13V
15			2.5V	
16			13.7V	

TUNER SECTION SEMICONDUCTOR LIST
R-316, R-326, R-336 & T-526

Q101, Q102, Q103 . . . . . CS 9016G or SE 1001
Q104, Q105 . . . . . 2SC 374 or CS 9014C
Q106 . . . . . 2SC 374 or CS 9014C
IC101, IC102 . . . . . LM 703 or µA 703
Q201 . . . . . 2N 3823 or JF 1033
AM Integrated Circuit . . . µA 720
Multiplex IC . . . . . µA 758 or ULN 2244

T-526 & T-526L ONLY

Q901, Q903, Q904 . . . . . 2SC 374 or CS 9013
Q902 . . . . . TIP 31B or 2SC 1173

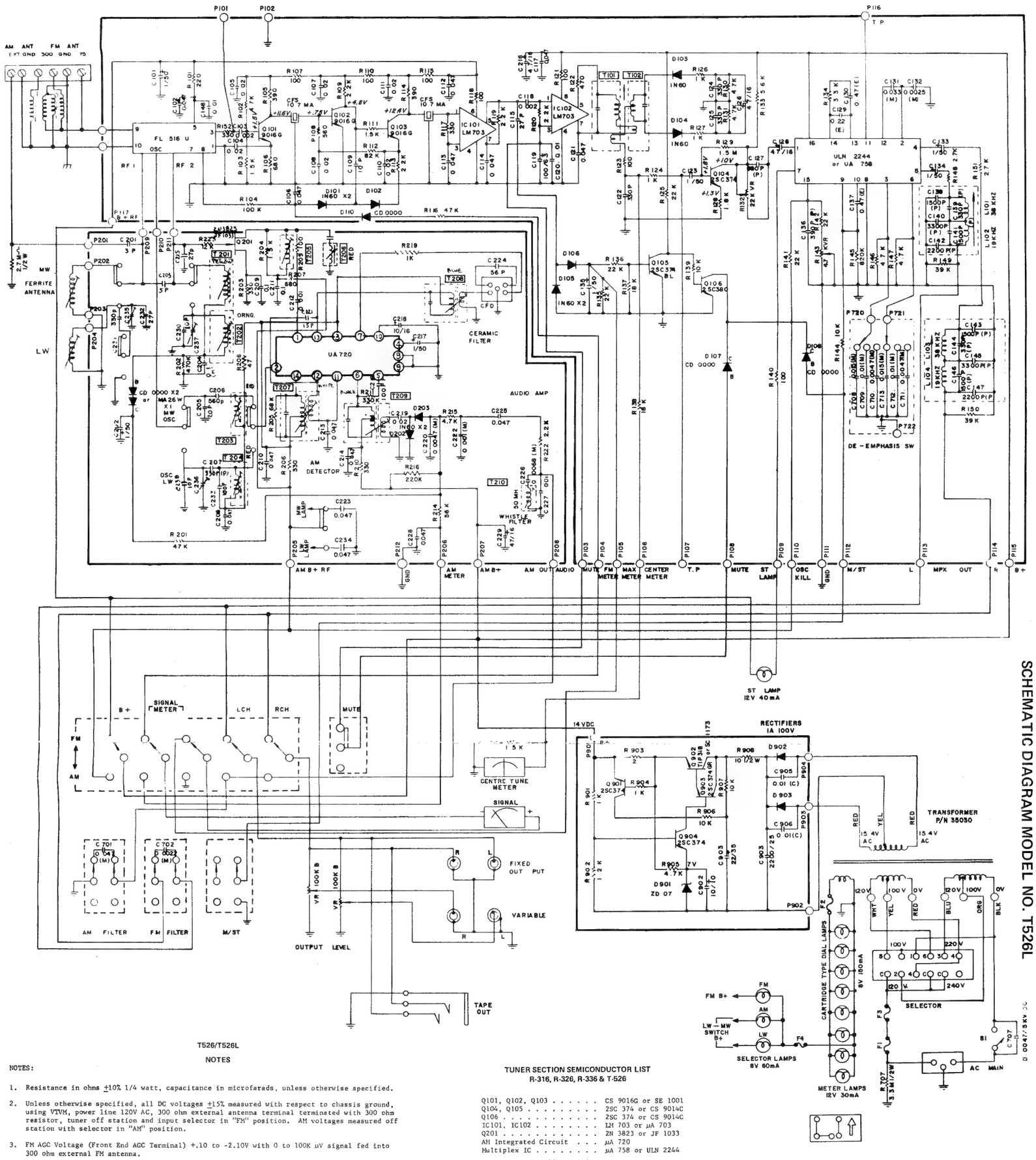


T526/T526L
NOTES

NOTES:

1. Resistance in ohms ±10% 1/4 watt, capacitance in microfarads, unless otherwise specified.
2. Unless otherwise specified, all DC voltages ±15% measured with respect to chassis ground, using VTVM, power line 120V AC, 300 ohm external antenna terminal terminated with 300 ohm resistor, tuner off station and input selector in "FM" position. AM voltages measured off station with selector in "AM" position.
3. FM AGC Voltage (Front End AGC Terminal) +.10 to -2.10V with 0 to 100K µV signal fed into 300 ohm external FM antenna.
4. Rotary Switch is shown in maximum counter clockwise position (Position 1). Positions are:
   1. FM
   2. AM
5. Indicator lamp for LW and MW in long wave models are wired directly to AM P.C. board.
6. Fuses

Power F-1	. . . . .	100-120V . . . 0.75A Normal blowing type
	. . . . .	220-240V . . . 0.37A Normal blowing type
Power F-3	. . . . .	0.75A Pigtail normal blowing type, wired internally. (May not be used in all production units)
Dial and Function Lamp F-2 and F-4	. . . . .	Suitable lengths of #38 SWG copper wire (0.006 inch, 0.15mm dia.)



SCHEMATIC DIAGRAM MODEL NO. T526L

T526/T526L

NOTES

NOTES:

1. Resistance in ohms ±10% 1/4 watt, capacitance in microfarads, unless otherwise specified.
2. Unless otherwise specified, all DC voltages ±15% measured with respect to chassis ground, using VTVM, power line 120V AC, 300 ohm external antenna terminal terminated with 300 ohm resistor, tuner off station and input selector in "FM" position. AM voltages measured off station with selector in "AM" position.
3. FM AGC Voltage (Front End AGC Terminal) +.10 to -2.10V with 0 to 100K µV signal fed into 300 ohm external FM antenna.
4. Rotary Switch is shown in maximum counter clockwise position (Position 1). Positions are:
   1. FM
   2. AM
5. Indicator lamp for LW and MW in long wave models are wired directly to AM P.C. board.
6. Fuses

Power F-1	100-120V	0.75A Normal blowing type
	220-240V	0.37A Normal blowing type
Power F-3		0.75A Pigtail normal blowing type, wired internally. (May not be used in all production units)
Dial and Function Lamp F-2 and F-4		Suitable lengths of #38 SWG copper wire (0.006 inch, 0.15mm dia.)

LONG WAVE TUNER SECTION
COIL IDENTIFICATION

T201 (Yellow)	-- MW R.F.	C235	-- LW R.F. Hi End Adj.
T202 (Orange)	-- LW R.F.	C236	-- LW OSC. Hi End Adj.
T203 (Red)	-- MW OSC.	C237	-- LW R.F. Hi End Adj.
T204 (Red)	-- LW OSC.		
T205	-- Non Adj. R.F.		
T206 (Red)	-- 455 kHz Trap		
T207 (White)	-- I.F.		
T208 (Blue)	-- I.F.		
T209 (Black)	-- Detector		
T210	-- Whistle Filter		

TUNER SECTION SEMICONDUCTOR LIST
R-316, R-326, R-336 & T-526

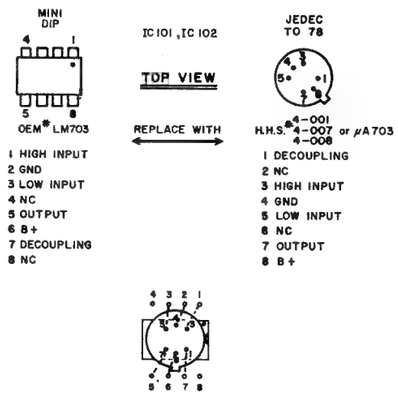
Q101, Q102, Q103	CS 9016G or SE 1001
Q104, Q105	2SC 374 or CS 9014C
Q106	2SC 374 or CS 9014C
IC101, IC102	LM 703 or µA 703
Q201	2N 3823 or JF 1033
AM Integrated Circuit	µA 720
Multiplex IC	µA 758 or ULN 2244

T-526 & T-526L ONLY

Q901, Q903, Q904	2SC 374 or CS 9013
Q902	TIP 31B or 2SC 1173

DC VOLTAGES AT INTEGRATED CIRCUIT PINS

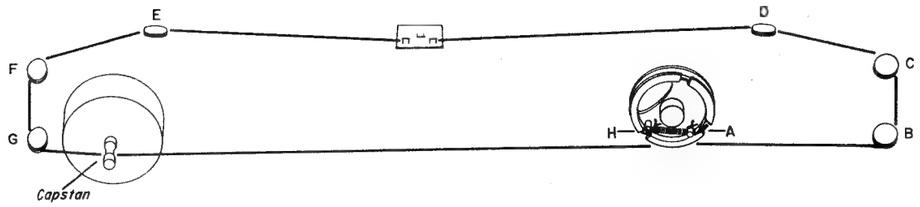
PIN#	IC101	IC102	µA 758	µA 720
1	1.4V	1.4V	3.2V	5V
2	—	—	4.6V	7.3V
3	1.4V	1.4V (station) 0.9V (mute)	5.2V	7.4V
4	0V	0V	4.5V	5V
5	11.4V	11.4V	4.5V	0.2V
6	13V	13V	5.0V	12V
7	12V	12V	13.7V	0.8V
8	—	—	0V	0V
9			1.5V (mono) 2.8V (stereo)	0V
10			2.8V	0.7V
11			1.8V	0.7V
12			2.7V	0.7V
13			2.8V	12V
14			2.8V	13V
15			2.5V	
16			13.7V	



DIAL CORD STRINGING INSTRUCTIONS

RECEIVERS

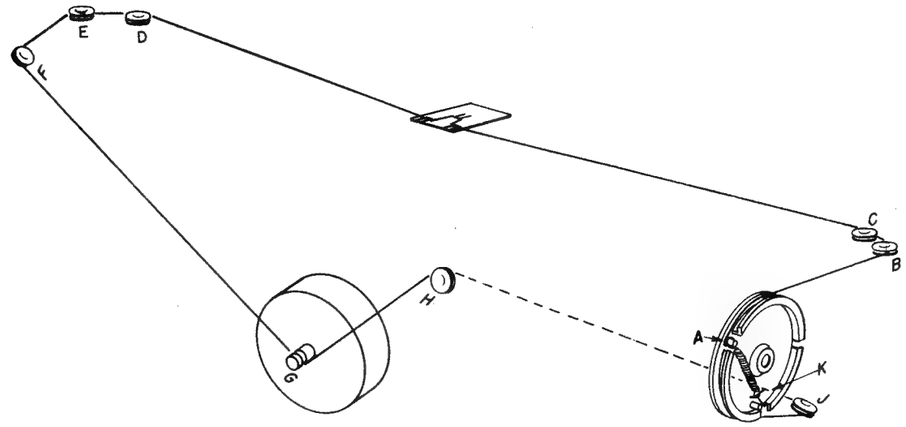
1. Set tuning capacitor plates "out" (minimum capacitance).
2. Tie dial cord to pulley boss "A".
3. Wind one turn of dial cord around tuning drum counter-clockwise, as viewed from rear of unit.
4. Continue over pulleys "B", "C", "D", "E", "F" & "G".
5. Wind three turns of dial cord around flywheel capstan counter-clockwise, when viewed from rear of unit.
6. Continue to tuning drum and install 1 3/4 turns of dial cord around drum, counter-clockwise. Enter drum opening at point "H" and attach cord to tension spring as shown.
7. Attach dial cord to pointer assembly, rotate dial knob to fully "mesh" tuning capacitor plates (low frequency end of dial).
8. Position pointer assembly on "0" log.
9. Rotate tuning knob in both directions to check for satisfactory dial drive operation, adjust tension as necessary. Apply suitable cement to dial cord knots and at dial pointer clips.



DIAL CORD STRINGING INSTRUCTIONS

T-526 TUNER

1. Set tuning capacitor plates "out" (minimum capacitance).
2. Tie dial cord to pulley boss "A".
3. Install cord around pulleys "B", "C", "D", "E" & "F".
4. Wind dial cord around flywheel capstan (G) three turns in a counter-clockwise direction.
5. Continue over pulleys "H" and "J". Use care not to bend tuning capacitor plates.
6. Wind two turns of dial cord around tuning drum (clockwise) and tie to dial cord tension spring at point "K".
7. Turn tuning knob counter-clockwise to "mesh" tuning capacitor plates.
8. Set dial pointer to "0" log and attach dial cord to pointer.
9. Check for free operating dial drive with adequate cord tension.
10. Apply suitable cement to knots at each end of dial cord, and to cord where it is clipped to the pointer assembly.

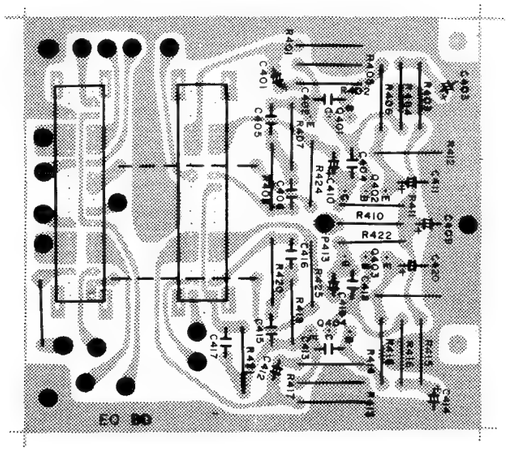


RECEIVER PREAMP BOARD NO. K40150A

ASSY. NO. 100-1333-037

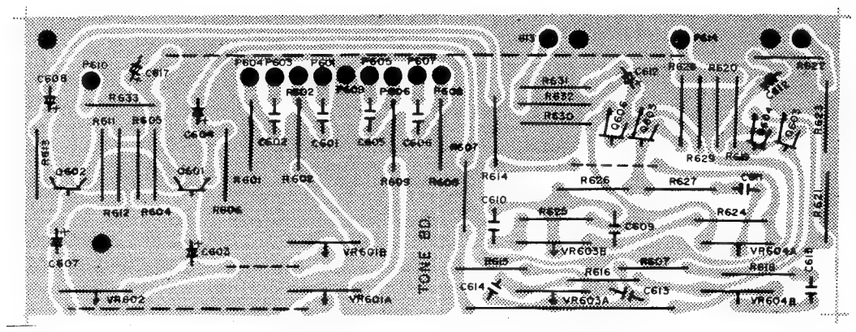
MODEL NOS.

R316
R326
R316L



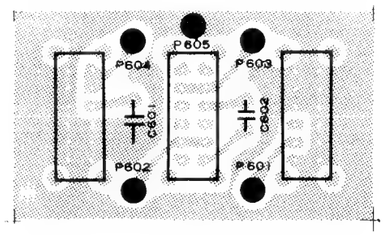
RECEIVER TONE CONTROL BOARD NO. K40148A

MODEL NOS.	ASSY. NOS.
R316 R316L	100-1334-031
R326	100-1334-029



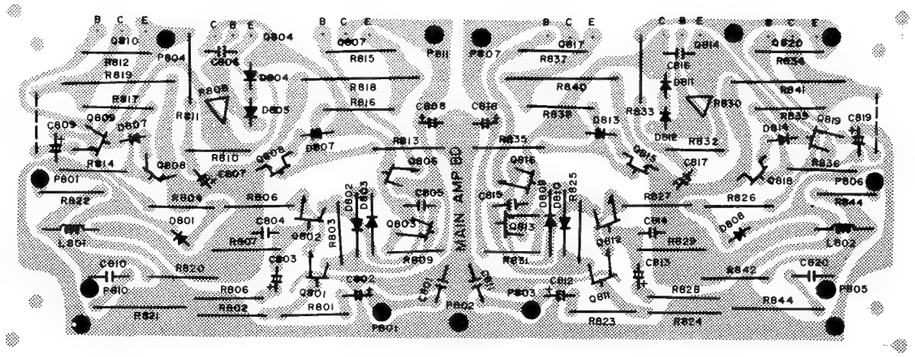
FILTER & MODE BOARD NO. K40151A

MODEL NOS.	ASSY. NO.
T526, T526L	100-1352-032



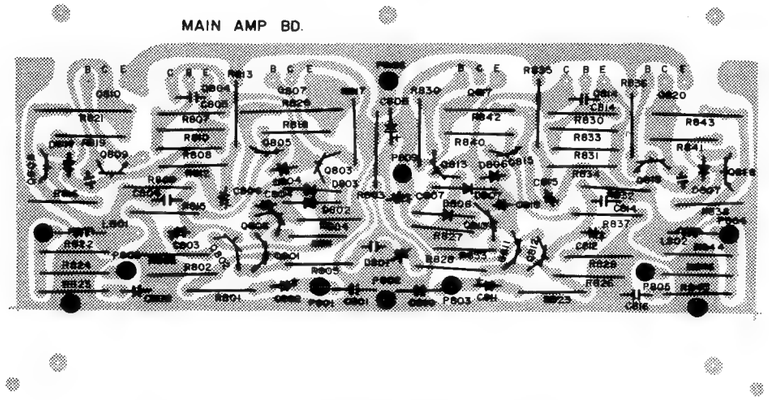
POWER BOARD NO. K40140A

MODEL NO.	ASSY. NO.
R-326	100-1335-022



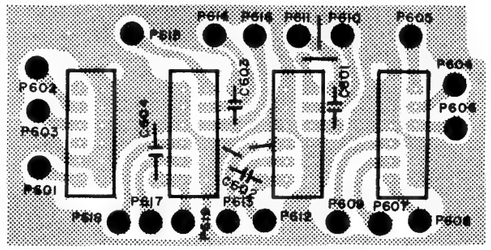
POWER BOARD NO. K40141A

MODEL NOS.	ASSY. NO.
R316, R316L	100-1335-023



LOUD, FILTER & MODE BOARD NO. K40151

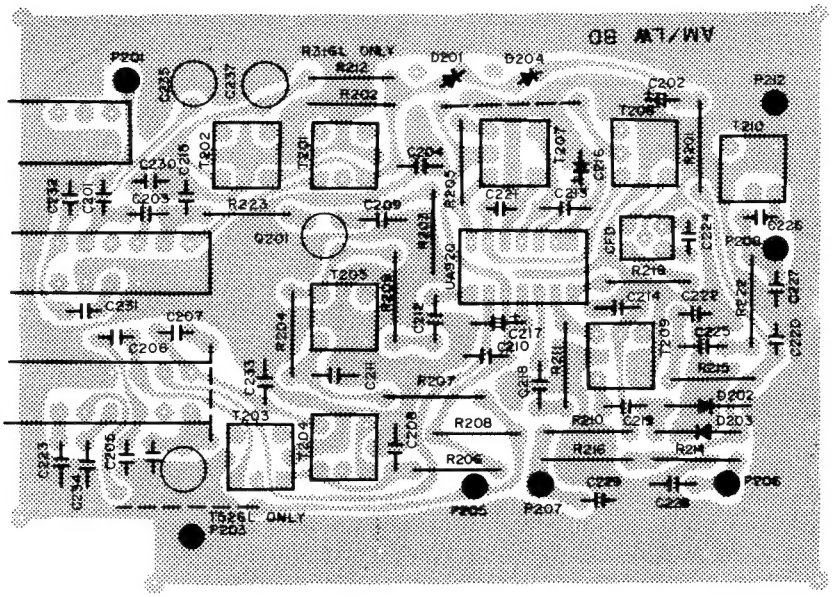
MODEL NOS.	ASSY. NOS.
R316, R316L	100-1352-031
R326	100-1352-030



AM LW TUNER BOARD NO. K40147-1

MODEL NOS.

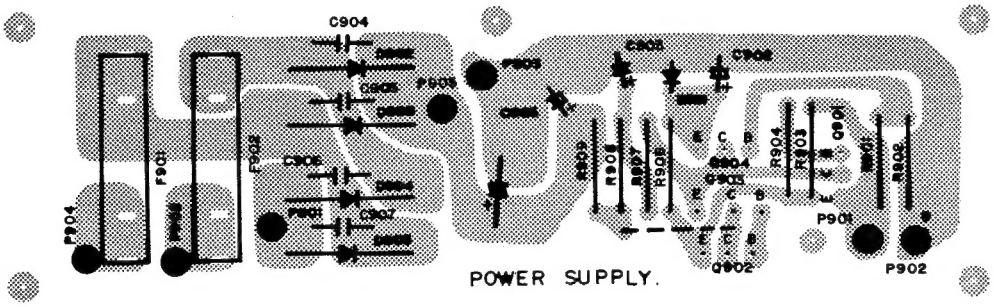
R316L
T526L



POWER SUPPLY REGULATOR BOARD NO. K40149

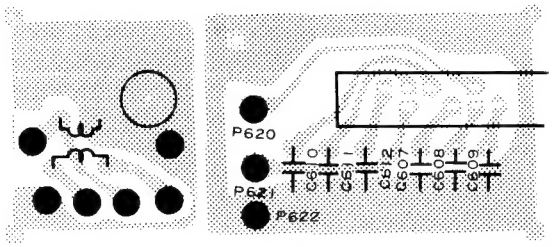
USED IN
ALL MODELS
ASSY. NOS.

100-1340-040 R-316
100-1340-038 R-326
100-1340-041 T-526



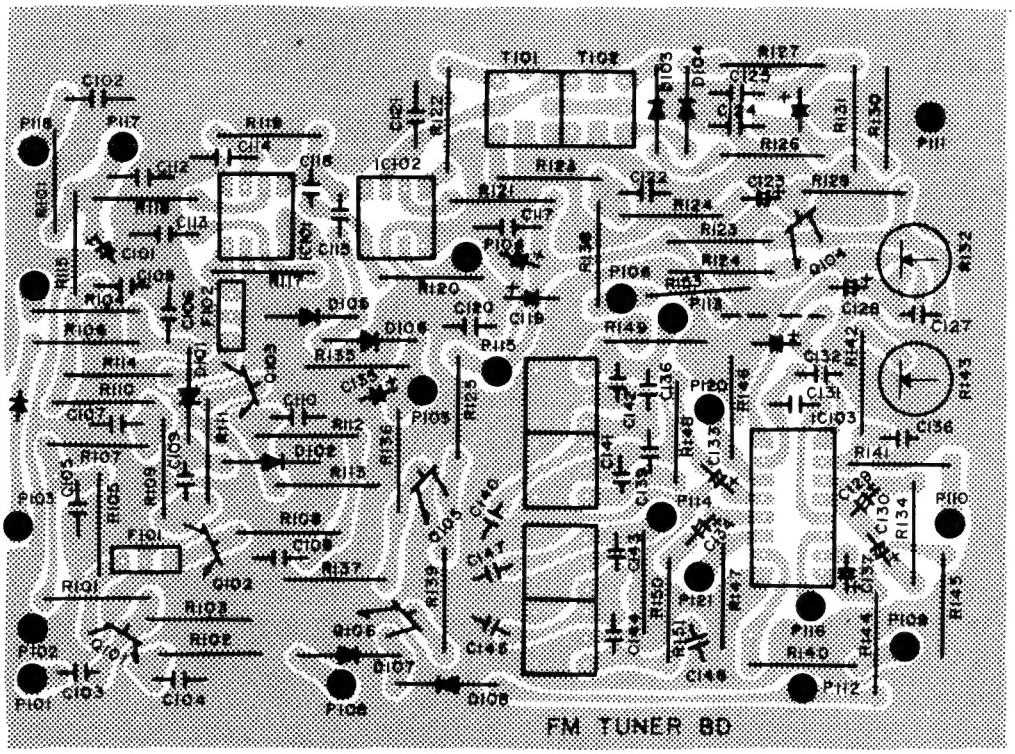
DEEMPHASIS BOARD NO. K40152

MODEL NOS.	ASSY. NOS.
R316, R326	100-1348-005
T526	100-1348-006



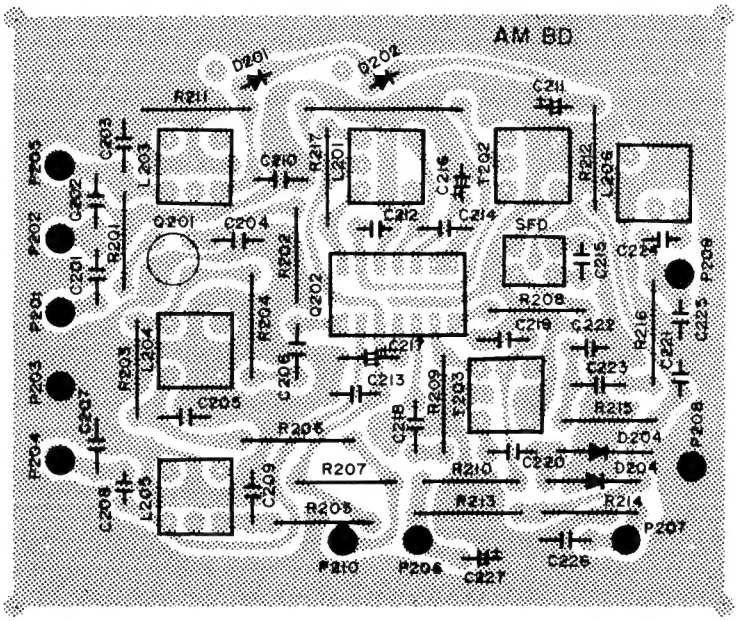
FM TUNER BOARD NO. K40145A

MODEL NOS.	ASSY NO.
R316, R316L, R326, T526, T526L	100-1351-004



AM TUNER BOARD NO. K40146A

MODEL NOS.	ASSY NO.
R316, R326, T526	100-1351-003



PARTS LIST

H.H. SCOTT PART NO.	DESCRIPTION		USAGE
011-1004-031	Filter Capacitor	4700/35V	R-326
011-1004-032	Filter Capacitor	3300/35V	R-316
012-1020-004	Diode	1N 60	A11
012-1021-001	Diode, SI	MA162, 1N4148, MA150	R-316/326
012-1021-004	Diode, SI	CD0000 NC	A11
012-1023-009	Diode, Zener	CD0044	R-316/326
012-1023-011	Diode, Zener	FZD-07	A11
012-1024-002	Diode, Rectifier	2A 100V	R-316/326
012-1024-014	Diode, Rectifier	1A 100V	T-526
013-1031-005	Fuse, Slo-Blo	.75A/250V	R-316
013-1031-008	Fuse, Slo-Blo	1.25A/250V	R-326
013-1031-009	Fuse, Slo-Blo	1.50A/125V	R-316
013-1031-011	Fuse, Slo-Blo	2.50A/125V	R-326
013-1031-018	Fuse, Fast-Blo	2.50A/125V	R-326
013-1031-025	Fuse, Fast-Blo	2A/125V	R-316
013-1031-030	Fuse, Fast-Blo	6A/125V	R-326
013-1031-031	Fuse, Slo-Blo	.75A/125V	T-526
013-1031-032	Fuse, Slo-Blo	.375A/250V	T-526
015-1061-014	Jack, Phone		A11
015-1061-015	Jack, Mic		R-316/326
016-1092-037	Inductor	2 mH	A11
016-1093-046	Inductor	50 mH	A11
016-1093-049	Coil, Multiplex	19 kHz (White)	A11
016-1093-050	Coil, Multiplex	38 kHz (Blue)	A11
016-1093-051	Coil, AM Osc.	Red	A11
017-1095-038	Meter, Signal Strength		A11
017-1095-039	Meter, Center Tune		R-326/T-526
018-1100-178	Knob, Volume		R-316/326
018-1100-179	Knob, Control		A11
018-1100-180	Knob, Push Button		A11
018-1100-181	Knob, Lever		A11
018-1100-183	Knob, Tuning		A11
018-1102-162	Panel, Front		R-316
018-1102-163	Panel, Front		R-326
018-1102-165	Panel, Front		T-526
018-1104-099	Glass Lens		A11
018-1105-113	Dial Glass		R-326
018-1105-114	Dial Glass		T-526
018-1105-115	Dial Glass		R-316
020-1110-053	Transistor	MPS 9630, 2SC 372	R-316/326
020-1110-054	Transistor	2SC 374 BL, 733	A11
020-1110-055q	Transistor	2SA 495, MPS 9680	R-316/326
020-1110-056	Transistor	2SA 661, FCS 1861	R-316/326

PARTS LIST

H.H. SCOTT PART NO.	DESCRIPTION		USAGE
020-1110-057	Transistor	2SC 1166, FCS 1860	R-316/326
020-1110-058	Transistor	2SC 1000	R-316/326
020-1110-061	Transistor	FCS 9016G	A11
020-1110-062	Transistor	MPS 9633, BC 318C	A11
020-1111-051	Transistor	TIP 31B	A11
020-1111-052	Transistor	FT 3055	R-326
020-1112-008	Transistor	TI 2N 3823	A11
020-1114-025	Integrated Circuit	LM 703, uA 703	A11
020-1114-031	Integrated Circuit	uA 720, MC 1320	A11
020-1114-032	Integrated Circuit	uA 758, ULN 2244N	A11
021-1125-137	Potentiometer, Balance		R-316/326
021-1125-138	Potentiometer, Volume		R-326
021-1125-139	Potentiometer, Volume		R-316
021-1125-143	Potentiometer, Tone		R-316/326
021-1125-145	Potentiometer, Level		T-526
023-1135-041	Switch, Slide, Deemphasis		A11
023-1136-013	Switch, Lever	4P2T	A11
023-1137-085	Switch, Rotary, Function		R-316/326
023-1137-086	Switch, Rotary, Speaker		R-316/326
023-1137-087	Switch, Rotary		T-526
023-1138-056	Switch, Push	3 Gang	A11
024-1140-077	Transformer		R-316
024-1140-078	Transformer		R-326
024-1140-080	Transformer		T-526
024-1142-021	Coil, AM, IFT	Blue	A11
024-1142-026	Coil, AM, IFT	Black	A11
024-1142-028	Coil, FM Discriminator A		A11
024-1142-029	Coil, FM Discriminator B		A11
024-1142-030	Coil, AM, RF	Yellow	A11
024-1142-031	Coil, AM, IFT	White	A11
024-1144-011	Filter	SFD 455B	A11
024-1144-012	Filter, Ceramic	10.7 MA	A11
027-1157-043	Cabinet, Wood		R-316/326
030-1187-032	Terminal, Speaker		R-316/326
030-1187-033	Terminal, Ground Assembly		A11
030-1189-032	Lamp, Lead Type	8V 60 mA	A11
030-1189-029	Lamp, Lead Type	12V 40 mA	A11
030-1189-030	Lamp, Lead Type	12V 30 mA	A11
030-1189-031	Lamp, Fuse Type	8V 150 mA	A11
030-1192-010	Fuse Holder		A11
031-1198-025	Dial Pointer		A11
031-1200-008	Feet, Rubber		A11
032-1251-190	Cabinet, Steel		T-526
035-1276-014	AM Antenna Assembly		A11
036-1280-004	Handle		T-526
100-1330-038	Front End Assembly	FL 516U	A11